



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,465	04/13/2004	Walter E. Red	1737.2.15	4603
21552 7590 10/28/2010 AUSTIN RAPP & HARDMAN 170 South Main Street, Suite 735 SALT LAKE CITY, UT 84101				
EXAMINER NORTON, JENNIFER L				
ART UNIT 2121		PAPER NUMBER		
NOTIFICATION DATE 10/28/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@austin-rapp.com

Office Action Summary

Application No.

10/823,465

Applicant(s)

RED ET AL.

Examiner

JENNIFER L. NORTON

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-12,14-23 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-12,14-23 and 25-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The following is a **Non-Final Office Action** in response to the Appeal Brief filed on 07 August 2010. Claims 3, 13 and 24 have been previously cancelled. Claims 1, 2, 4-12, 14-23 and 25-31 are pending in this application.

Response to Arguments

2. Applicant's arguments see Remarks pgs. 8-12, filed 07 August 2010 with respect to claims 1, 2, 4-12, 14-23 and 25-31 under 35 U.S.C. 103(a) have been considered but are moot in view of the new ground(s) of rejection.

3. Claims 1, 2, 4-12, 14-23 and 25-31 stand rejected under 35 U.S.C. 103(a) as set forth below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 7, 11, 12, 17, 22, 23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,588,342 B2 (hereinafter Griggs) in view of U.S. Patent No. 6,757,247 B1 (hereinafter Zheng).

5. As per claim 1, Griggs teaches a method for controlling one or more electronic devices (Fig. 1, element 104-107; i.e. bandpass filter/ignitor assemblies) through a host device (col. 3, lines 30-33 and 47-53 and Fig. 1, element 116), the method comprising:

establishing frequency-based, real-time electronic communications over a network between the host device and one or more controlled devices (col. 2, lines 51-55, col. 3, lines 30-33 and 54-65 and col. 6, lines 5-9; i.e. the controller sends out a narrow-band signal centered about a selected frequency to each ignitor);

assigning each controlled device a control frequency specific to that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; i.e. assigning a selected frequency specific to each ignitor to send control signals specific to each ignitor);

executing control software in the host device to generate control input parameters for the one or more controlled devices (col. 4, lines 35-50 and col. 6-15; i.e. the ignitor controller generates a frequency according to its band-pass filter for each ignitor);

sending the control input parameters to the one or more controlled devices (col. 3, lines 54-67 and col. 4, lines 1-4; i.e. sending command data to an ignitor at an assigned frequency), wherein the control input parameters for a particular controlled device are always sent to that controlled device at the assigned control frequency for that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; each ignitor is assigned a unique control frequency to provide communication for sending command data to each specific ignitor); and

so that electronic communication with each controlled device always occurs at the assigned control frequency for that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; each ignitor is assigned a unique control frequency to provide communication for sending command data to each specific ignitor);

wherein the one or more controlled devices do not include a hardware controller for generating the control input parameters (col. 3, lines 65-67 and col. 4, lines 1-4; i.e. each ignitor is a passive device), but instead receive the control input parameters from the host device via the frequency-based communications (col. 3, lines 54-65; i.e. sending command data to an ignitor at an assigned frequency).

Griggs does not expressly teach real-time communication; and ensuring that the sum of all the control frequencies for the one or more controlled devices does not exceed the network's bandwidth, thereby facilitating real-time communication with that controlled device.

Zheng teaches a communication network (col. 1, lines 8-10) comprising a connection controller (Fig. 1, element 102) that is programmed to ensure that the sum of all the frequencies for the one or more devices does not exceed the network's bandwidth (col. 5, lines 4-15 and col. 4, lines 30-45), thereby facilitating real-time communication with that device (col. 5, lines 16-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Griggs to include a

communication network comprising a connection controller that is programmed to ensure that the sum of all the frequencies for the one or more devices does not exceed the network's bandwidth, thereby facilitating real-time communication with that device to guarantee that the quality of service over the network will not degrade by allowing too many connections (Zheng: col. 5, lines 22-25).

6. As per claim 2, Griggs teaches as set forth above to receiving, at the host device (via Fig. 1, element 102), output parameters from the controlled devices in response to the control input parameters (col. 5, lines 55-67 and col. 6, lines 1-4).

7. As per claim 7, Griggs teaches as set forth above initiating a control loop process on the host device when electronic communication is established with a controlled devices (col. 3, lines 54-65, col. 5, lines 55-67 and col. 6, lines 1-4; i.e. sending command data to an ignitor at an assigned frequency and receiving data from the ignitor based on command data sent).

8. As per claim 11, Griggs a computing device configured for controlling electronic devices (Fig. 1, element 104-107; i.e. bandpass filter/ignitor assemblies), the computing device (col. 3, lines 30-33 and 47-53 and Fig. 1, element 116) comprising:

a processor (col. 3, lines 30-33 and 47-53 and Fig. 1, element 116);

memory in electronic communication with the processor; and

executable instructions executable by the processor, wherein the executable instructions are configured for:

establishing frequency-based, real-time electronic communications over a network between the host device and one or more controlled devices (col. 2, lines 51-55, col. 3, lines 30-33 and 54-65 and col. 6, lines 5-9; i.e. the controller sends out a narrow-band signal centered about a selected frequency to each ignitor);

assigning each controlled device a control frequency specific to that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; i.e. assigning a selected frequency specific to each ignitor to send control signals specific to each ignitor);

executing control software in the host device to generate control input parameters for the one or more controlled devices (col. 4, lines 35-50 and col. 6-15; i.e. the ignitor controller generates a frequency according to its band-pass filter for each ignitor);

sending the control input parameters to the one or more controlled devices (col. 3, lines 54-67 and col. 4, lines 1-4; i.e. sending command data to an ignitor at an assigned frequency), wherein the control input parameters for a particular controlled device are always sent to that controlled device at the assigned control frequency for that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; each ignitor is assigned a unique control frequency to provide communication for sending command data to each specific ignitor); and

so that electronic communication with each controlled device always occurs at the assigned control frequency for that controlled device, thereby facilitating communication with that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; each ignitor is assigned a unique control frequency to provide communication for sending command data to each specific ignitor);

wherein the one or more controlled devices do not include a hardware controller for generating the control input parameters (col. 3, lines 65-67 and col. 4, lines 1-4; i.e. each ignitor is a passive device), but instead receive the control input parameters from the host device via the frequency-based electronic communications (col. 3, lines 54-65; i.e. sending command data to an ignitor at an assigned frequency).

Griggs does not expressly teach real-time communication; and ensuring that the sum of all the control frequencies for the one or more controlled devices does not exceed the network's bandwidth.

Zheng teaches a communication network (col. 1, lines 8-10) comprising a connection controller (Fig. 1, element 102) that is programmed to ensure that the sum of all the frequencies for the one or more devices does not exceed the network's bandwidth (col. 5, lines 4-15 and col. 4, lines 30-45), thereby facilitating real-time communication with that device (col. 5, lines 16-25).

9. As per claim 12, Griggs teaches as set forth above the executable instructions are also configured for receiving, at the computing device (via Fig. 1, element 102), output parameters from the controlled devices in response to the control input parameters (col. 5, lines 55-67 and col. 6, lines 1-4).

10. As per claim 17, Griggs teaches as set forth above the executable instructions are also configured for initiating a control loop process on the computing device when electronic communication is established with a controlled device (col. 3, lines 54-65, col. 5, lines 55-67 and col. 6, lines 1-4; i.e. sending command data to an ignitor at an assigned frequency and receiving data from the ignitor based on command data sent).

11. As claim 22, Griggs teaches a computer-readable medium for storing program data, wherein the program data comprises executable instructions for:

establishing frequency-based electronic communications over a network between the host device and one or more controlled devices (col. 2, lines 51-55, col. 3, lines 30-33 and 54-65 and col. 6, lines 5-9; i.e. the controller sends out a narrow-band signal centered about a selected frequency to each ignitor);

assigning each controlled device a control frequency specific to that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; i.e. assigning a selected frequency specific to each ignitor to send control signals specific to each ignitor);

executing control software in the host device to generate control input parameters for the one or more controlled devices (col. 4, lines 35-50 and col. 6-15; i.e. the ignitor controller generates a frequency according to its band-pass filter for each ignitor);

sending the control input parameters to the one or more controlled devices (col. 3, lines 54-67 and col. 4, lines 1-4; i.e. sending command data to an ignitor at an assigned frequency), wherein the control input parameters for a particular controlled device are always sent to that controlled device at the assigned control frequency for that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; each ignitor is assigned a unique control frequency to provide communication for sending command data to each specific ignitor); and

so that electronic communication with each controlled device always occurs at the assigned control frequency for that controlled device, thereby facilitating real-time communication with that controlled device (col. 4, lines 35-50 and col. 6, lines 5-15; each ignitor is assigned a unique control frequency to provide communication for sending command data to each specific ignitor);

wherein the one or more controlled devices do not include a hardware controller for generating the control input parameters (col. 3, lines 65-67 and col. 4, lines 1-4; i.e. each ignitor is a passive device), but instead receive the control input parameters from the host device via the frequency-based electronic communications (col. 3, lines 54-65; i.e. sending command data to an ignitor at an assigned frequency).

Griggs does not expressly teach real-time communication; and ensuring that the sum of all the control frequencies for the one or more controlled devices does not exceed the network's bandwidth.

Zheng teaches a communication network (col. 1, lines 8-10) comprising a connection controller (Fig. 1, element 102) that is programmed to ensure that the sum of all the frequencies for the one or more devices does not exceed the network's bandwidth (col. 5, lines 4-15 and col. 4, lines 30-45), thereby facilitating real-time communication with that device (col. 5, lines 16-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Griggs to include a communication network comprising a connection controller that is programmed to ensure that the sum of all the frequencies for the one or more devices does not exceed the network's bandwidth, thereby facilitating real-time communication with that device to guarantee that the quality of service over the network will not degrade by allowing too many connections (Zheng: col. 5, lines 22-25).

12. As per claim 23, Griggs teaches as set forth above the executable instructions are also configured for receiving, at the computing device (via Fig. 1, element 102), output parameters from the controlled device in response to the control input parameters (col. 5, lines 55-67 and col. 6, lines 1-4).

13. As per claim 28, Griggs teaches as set forth above the executable instructions are also configured for initiating a control loop process on the computing device when electronic communication is established with a controlled device (col. 3, lines 54-65, col. 5, lines 55-67 and col. 6, lines 1-4; i.e. sending command data to an ignitor at an assigned frequency and receiving data from the ignitor based on command data sent).

14. Claims 4-6, 14-17 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griggs in view of Zheng in further view of U.S. Patent No. 6,028,412 (hereinafter Shine).

15. As per claim 4, neither Griggs nor Zheng expressly teach the control frequency is assigned using a $2N$ time slicing algorithm, where N is a non-negative integer, wherein each control frequency that is assigned has a value of $2N$, further comprising establishing real-time electronic communications with a plurality of controlled devices and assigning a discrete control frequency for each controlled device using the $2N$ time slicing algorithm, where N is a non-negative integer.

Shine teaches a frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each frequency that is assigned has a value of 2^N (col. 1, lines 62-65 and col. 2, lines 12-26), and assigning a discrete frequency for each device using the 2^N time slicing algorithm, where N is a non-negative integer (col. 1, lines 62-65 and col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to include a frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each frequency that is assigned has a value of 2^N , and assigning a discrete frequency for each device using the 2^N time slicing algorithm, where N is a non-negative integer to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22); in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

16. As per claim 5, neither Griggs nor Zheng expressly teach N is independently determined for each controlled device of the plurality of the controlled devices.

Shine teaches N is independently determined for each device of the plurality of the devices (col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to include N is independently determined for each device of the plurality of the devices to simplify the comparison between the stored trigger value and the stored accumulator value as the

binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22) in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

17. As per claim 6, neither Griggs nor Zheng expressly teach the 2^N time slicing algorithm comprises assigning the control frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete control frequency in proximity to a preferred control frequency of each controlled device.

Shine teaches the 2^N time slicing algorithm comprises assigning the frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete frequency in proximity to a preferred frequency of each device (col. 1, lines 62-65 and col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to the 2^N time slicing algorithm comprises assigning the frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete frequency in proximity to a preferred frequency of each device to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is

also represented by a single bit being set (Shine: col. 2, lines 15-22); in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

18. As per claim 14, neither Griggs nor Zheng expressly teach the control frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each control frequency that is assigned has a value of 2^N wherein the executable instructions are also configured for establishing real-time electronic communications with a plurality of controlled devices and assigning a discrete control frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer.

Shine teaches a frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each frequency that is assigned has a value of 2^N wherein the executable instructions are also configured for establishing real-time electronic communications with a plurality of devices (col. 1, lines 62-65 and col. 2, lines 12-26) and assigning a discrete control frequency for each device using the 2^N time slicing algorithm, where N is a non-negative integer (col. 1, lines 62-65 and col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to include a frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative

integer, wherein each frequency that is assigned has a value of 2^N , wherein the executable instructions are also configured for establishing real-time electronic communications with a plurality of devices and assigning a discrete control frequency for each device using the 2^N time slicing algorithm, where N is a non-negative integer to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22); in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

19. As per claim 15, neither Griggs nor Zheng expressly teach wherein N is independently determined for each controlled device of the plurality of controlled devices.

Shine teaches N is independently determined for each device of the plurality of devices (col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to include N is independently determined for each device of the plurality of devices to simplify the comparison between the stored trigger value and the stored accumulator value as the

binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22) in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

20. As per claim 16, neither Griggs nor Zheng expressly teach the 2^N time slicing algorithm comprises assigning the control frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete control frequency in proximity to a preferred control frequency of the controlled device.

Shine teaches the 2^N time slicing algorithm comprises assigning the frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete frequency in proximity to a preferred frequency of the device (col. 1, lines 62-65 and col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to the 2^N time slicing algorithm comprises assigning the frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete frequency in proximity to a preferred frequency of the device to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is

also represented by a single bit being set (Shine: col. 2, lines 15-22); in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

21. As per claim 17, neither Griggs nor Zheng expressly teach the executable instructions are also configured for initiating a torque/current control loop process at a microcontroller on the controlled device when the controlled device comprises a motor.

Shine teaches to initiating a torque/current control loop process at a microcontroller on the controlled device when the controlled device comprises a motor (col. 3, lines 18-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view of Zheng to include initiating a torque/current control loop process at a microcontroller on the controlled device when the controlled device comprises a motor because the method is well suited to governing motor speeds and in particular for controlling stepper motors, including full step, half step and micro-steppers. Similarly, the speed of a DC motor can be regulated with this method by providing the controlling frequency that governs the rotational speed of the armature (Shine: col. 3, lines 35-41). In addition the method can be implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

22. As per claim 25, neither Griggs nor Zheng expressly teach the control frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each control frequency that is assigned has a value of 2^N wherein the executable instructions are also configured for establishing real-time electronic communications with a plurality of controlled devices and assigning a discrete control frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer.

Shine teaches a frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each frequency that is assigned has a value of 2^N wherein the executable instructions are also configured for establishing real-time electronic communications with a plurality of devices (col. 1, lines 62-65 and col. 2, lines 12-26) and assigning a discrete frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer (col. 1, lines 62-65 and col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to include a frequency is assigned using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each frequency that is assigned has a value of 2^N wherein the executable instructions are also configured for establishing real-time electronic communications with a plurality of devices and assigning a discrete frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer

to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22); in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

23. As per claim 26, neither Griggs nor Zheng expressly teach N is independently determined for each controlled device of the plurality of controlled devices.

Shine teaches N is independently determined for each device of the plurality of devices (col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to include N is independently determined for each device of the plurality of devices to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22) in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

24. As per claim 27, neither Griggs nor Zheng expressly teach the 2^N time slicing algorithm comprises assigning the control frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete control frequency in proximity to a preferred control frequency of the controlled device.

Shine teaches a 2^N time slicing algorithm comprises assigning the frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete frequency in proximity to a preferred frequency of the device (col. 1, lines 62-65 and col. 2, lines 12-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng to a 2^N time slicing algorithm comprises assigning the frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete frequency in proximity to a preferred frequency of the device to simplify the comparison between the stored trigger value and the stored accumulator value as the binary value of the stored trigger value is represented by a single bit in a register being set and exceeding the trigger value is also represented by a single bit being set (Shine: col. 2, lines 15-22); in addition to being implemented very cheaply on commercially available integrated circuits and embedded controllers (Shine: col. 3, lines 45-48).

25. Claims 8-10, 19-21 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griggs in view of Zheng in further view of Shine and U.S. Patent No. 6,499,054 (hereinafter Hesslink).

26. As per claim 8, Griggs, Zheng nor Shine expressly teach accessing the host device from a remote computing device via the Internet.

Hesslink teaches accessing the host device from a remote computing device (Fig. 1B, element 118) via the Internet (col. 3, lines 6-8 and Fig. 1B, element 50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include accessing the host device from a remote computing device via the Internet to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

27. As per claim 9, Griggs, Zheng nor Shine expressly teach providing information relating to the controlled devices to a user at the remote computing device.

Hesslink teaches providing information relating to the controlled devices to a user at the remote computing device (col. 4, lines 11-14 and Fig. 1B, element 118).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include providing information relating to the controlled devices to a user at the remote computing device to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

28. As per claim 10, Griggs, Zheng nor Shine expressly teach receiving user input at the host device from the user at the remote computing device, wherein the input relates to the controlled devices.

Hesslink teaches receiving user input at the host device from the user at the remote computing device, wherein the input relates to the controlled device (col. 4, lines 16-18 and Fig. 1B, element 114).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include receiving user input at the host device from the user at the remote computing device, wherein the input relates to the controlled device to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

29. As per claim 19, Griggs, Zheng nor Shine expressly teach the executable instructions are also configured for accessing the computing device from a remote computing device via the Internet.

Hesslink teaches the executable instructions are also configured for accessing the computing device (Fig. 1B, element 118) from a remote computing device via the Internet (col. 3, lines 6-8 and Fig. 1B, element 50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include the executable instructions are also configured for accessing the computing device from a remote computing device via the Internet to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

30. As per claim 20, Griggs, Zheng nor Shine expressly teach the executable instructions are also configured for providing information relating to the controlled devices to a user at the remote computing device.

Hesslink teaches the executable instructions are also configured for providing information relating to the controlled devices to a user at the remote computing device (col. 4, lines 11-14 and Fig. 1B, element 118).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include the executable instructions are also configured for providing information relating to the controlled devices to a user at the remote computing to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

31. As per claim 21, Griggs, Zheng nor Shine expressly teach the executable instructions are also configured for receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled devices.

Hesslink teaches the executable instructions are also configured for receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled devices (col. 4, lines 16-18 and Fig. 1B, element 114).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include the executable instructions are also configured for receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled devices to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

32. As per claim 29, Griggs, Zheng nor Shine expressly teach the executable instructions are also configured for accessing the computing device from a remote computing device via the Internet.

Hesslink teaches executable instructions are also configured for accessing the computing device from a remote computing device (Fig. 1B, element 118) via the Internet (col. 3, lines 6-8 and Fig. 1B, element 50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include executable instructions are also configured for accessing the computing device from a remote computing device (Fig. 1B, element 118) via the Internet to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

33. As per claim 30, Griggs, Zheng nor Shine expressly teach the executable instructions are also configured for providing information relating to the controlled devices to a user at the remote computing device.

Hesslink teaches executable instructions are also configured for providing information relating to the controlled devices to a user at the remote computing device (col. 4, lines 11-14 and Fig. 1B, element 118).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include executable instructions are also configured for providing information relating to the controlled devices to a user at the remote computing device to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

34. As per claim 31, Griggs, Zheng nor Shine expressly teach the executable instructions are also configured for receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled devices.

Hesslink teaches the executable instructions are also configured for receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled devices (col. 4, lines 16-18 and Fig. 1B, element 114).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Griggs in view Zheng in further view Shine to include executable instructions are also configured for receiving user input at the computing device from the user at the remote computing device, wherein the input

relates to the controlled devices to support a method of controlling devices and processes in real time via the Internet (col. 2, lines 10-12).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to field of communication.

U.S. Patent No. 5,519,692 discloses a set of phases defining an 'address' and a 'spreading key'.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER L. NORTON whose telephone number is (571)272-3694. The examiner can normally be reached on Monday-Friday between 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Albert DeCady/
Supervisory Patent Examiner
Art Unit 2121

/JLN/